NOTES

M. JANSSEN delivered with great success a long address as President of the French Association for the Progress of Science, which met at La Rochelle on the same day that the British Association met at Southampton. The address of Dr. Janssen was very well received, and is reported at length in the *Revue Scientifique.* But La Rochelle being quite a small place, of about 20,000 inhabitants, the interest of the session has been in some respects impaired, and has been mostly confined to the several excursions. The finances of the Association are very prosperous, and its income is exclusively spent in the interest of science.

A HALL of Residence for Women Students at University College, London, and at the School of Medicine for Women, is to be opened next October, at No. 1, Byng Place, Gordon Square, W.C., in the neighbourhood of these institutions. Students who would otherwise live in lodgings, or in non-academic boarding houses, will welcome the opportunities thus afforded, whether most importance be attached to the household arrangements, specially adapted to secure their health and comfort, or to the facilities afforded for quiet study, or to that intellectual and social intercourse with each other which constitutes the fellowship so justly valued in the older Universities. The degrees of the University of London are open to women, and the courses of study which prepare for such degrees are in themselves among the best attainable forms of modern training. University College, London, has supported the action of the University by admitting women on the same footing as men to all the classes of its Faculties of Arts and Law and of Science, and to its libraries, thus throwing open to them a full training in these fields of study. The London School of Medicine for Women, near University College, although not connected with it, is the only institution in England that trains women for degrees in medicine and surgery, and is formally recognised by the University of London. Students of painting, etching, and sculpture have long enjoyed the advantages of the Slade School, which is an important part of one Faculty of Arts in University College, and proximity to the British Museum, with its art collections, will also be considered as another great advantage. On all these accounts the neighbourhood of the College has become a focus for women's education. The very necessary condition is imposed that students applying for admission shall be required to satisfy the committee that their object is serious study; and if any student should require private tuition, the principal is empowered by the committee to make the necessary arrangements. Communications should be addressed to the Principal, Miss Green, 6, Henrietta Street, Cavendish Square. Many well-known names appear in the list of those who approve the scheme; among others, the Countess of Airlie, the Dean of Westminster, Sir F. Bramwell, Mrs. Henry Fawcett, Prof. Carey Foster, Dr. Gladstone, Prof. Huxley, Lady Stanley of Alderley, Mr. B. Samuelson, M.P., Dr. Siemens, Mr. W. Spottiswoode, Prof. Williamson, and the Misses Browne.

THE Sanitary Institute of Great Britain holds its autumn Congress at Newcastle-upon-Tyne, from September 26 to 30. The Exhibition of Sanitary Apparatus and Appliances in connection with the Congress will be held in the Tyne Brewery Buildings, Bath Lane, from September 26 to October 21. The president of the Congress is Capt. Douglas Galton, R.E., C.B., F.R.S. The sections of the Congress are: (1) Sanitary Science and Preventive Medicine, President, Dennis Embleton, M.D., F.R.C.P.; (2) Engineering and Architecture, President, Henry Law, M.Inst.C.E.; (3) Chemistry, Meteorology, and Geology, President, Arthur Mitchell, M.D., F.R.S. On Saturday, September 30, a lecture to the working classes will be given by B. W. Richardson, M.D., F.R.S.

THE Eighth Annual Conference of the Cryptogamic Society of Scotland will be held at Kenmore, Perthshire, on September 4, and following days. Fellows who purpose being present are requested to communicate as soon as possible with Dr. F. Buchanan White, Perth. Kenmore may be reached from Aberfeldy, on the Highland Railway, or from Killin Station, on the Callander and Oban Railway. It is situated at the east end of Loch Tay (on which a steamer has now been placed). The immediate neighbourhood has been favourably reported on as presenting a presumably rich fungus flora, while Ben Lawers and other mountains are distant only a few miles, as is the celebrated Fortingal Yew, supposed to be the oldest living tree in Europe.

CAPT. R. G. MORRIS, R.E., and Lieut. Darwin, R.E., selected by the Astronomer Royal to leave England to observe the transit of Venus, sailed from Plymouth on Saturday afternoon in the *Liguria* of the Orient line. Four German expeditions will soon leave Hamburg for America to observe the transit, being destined for different points of view on the Northern and Southern continents. Each party will consist of two proved astronomers, and a student assistant. The points of observation allotted to the Germans are in Connecticut, South Carolina, Costa Rica, and the Straits of Magellan. The observers will remain at their appointed stations several months, and those at Punta Arenas will be attended and assisted by the Imperial gunboat *Albatross.*

IN the month of September two more statues will be inaugurated in France—one at Nolley (near Dijon) to Carnot, and the other at Serres in Ariege, in the honour of Lakanal. We referred to Carnot at the time his statue was proposed; Lakanal was the secretary of the 11th class of the National Institute when it was established by the Government of the Convention. It was Lakanal who wrote the regulations which are now in existence with a few immaterial alterations. He lived a long time an exile in America, and returned to Paris after the revolution of 1830, and was nominated member of the Academy of Morales and Political Science. The new Minister of Public Instruction will be present at the ceremony, and deliver a speech, in which he will explain the tendency of his administration.

THE mirror of the Leverrier telescope, more than 1 metre in diameter, has been silvered anew by a process employed for the first time with great success. A kind of circular wall in gutta-percha and plaster was built, so that a kind of trough was made with the concave mirror forming the bottom. This space was filled up by the silvering solution, and the operation was terminated as usual by the Leon Foucault process. The trouble of turning over the glass, which weighs 600 kilogs., was thus saved. This success is all the more to be appreciated that the silvering must take place every two or three years. The curvature of the mirror not being quite perfect, it will be used mostly for spectrum analysis of the light emanating from planets.

THE work of building a new central school for "Ingenieurs des Arts et Manufactures," was inaugurated at Paris a few days ago in a square called Carré St. Martin, situated in the rear of the Conservatoire des Arts et Métiers. The laying of the first stone will soon take place, and will be celebrated as a public ceremony. This central school and the Conservatoire will form a "group scholaire" of unexampled usefulness for high industrial studies.

WE announced last week the death of the well-known Russian navigator and explorer, Admiral Count Lütke. Feodor Petrowitch Lütke was born at St. Petersburg on September 29, 1797. He served, in 1813, as a volunteer in the fleet appointed to besiege Danzig, then in possession of the French, and was for his bravery made midshipman. In 1817-18 he accompanied Golowin in the latter's voyage round the world; was commissioned in 1821 to explore Kamtschatka, and in 1821-24 made several voyages in the Arctic regions, devoting himself especially to a survey of the coasts of Novaya Zemlya. His narrative of these voyages still forms one of the richest sources of our knowledge of this part of the Polar Sea. In 1823 Lütke was promoted to the rank of Captain-Lieutenant, and in 1826-28, commanded a Russian exploring expedition around the world, in which he was accompanied by a scientific staff. He explored the Russian shores of Asia and America, and discovered several island groups in the Pacific. Promoted in 1829 to the rank of Captain, he was in 1832 made Adjutant to the Emperor Nicholas, and tutor of the Grand Duke Constantine, whose curator he was from 1847 to 1852. Having been promoted to Adjutant-General in 1842, and Vice-Admiral in 1845, Lütke was in 1851-3 Military Governor of Revel and late of Kronstadt. He was made Admiral in 1855. He was in 1845 founder of the Russian Geographical Society, and since 1864 president of the St. Petersburg Academy of Sciences. He was made a Count in 1866. In 1828 Lütke published the narrative of his Arctic expeditions, and in 1834 the account of his voyage round the world.

THE July number of the *Agricultural Students' Gazette* (Royal Agricultural College, Cirencester) contains an article by Prof. E. Kinch on the Soy bean (*Soja hispida*). This bean, of which there are a dozen or more varieties known in the East, is very largely used as an article of food in Japan and China, where it is manufactured not only into soy, now exported in considerable quantities to Europe, but also into bean cheese and other forms of food. The soy bean in its proximate composition approaches more nearly to animal food than any other known vegetable production, being singularly rich in fat and in albuminoids, and it is therefore a valuable adjunct to the food of the almost vegetarian Japanese. Of late years, especially since the Vienna International Exhibition, many efforts have been made to acclimatise this bean in various parts of the European continent, chiefly in Hungary and Germany. France and Italy have also attempted it, and some of the experiments have been fairly successful. We notice that Prof. Kinch is trying to grow some of the varieties in the botanic garden at Cirencester, and though our climate is probably too uncertain and the temperature often too low for most of the varieties to attain perfection, still if any of them could be acclimatised a valuable leguminous cross would be added to our present list. The paper contains detailed analyses of the bean as grown in different countries, of several of the foods made from it, of its straw, which is a useful fodder, and of the ash of the bean and straw.

IN the same number of the *Gazette* is a useful paper by Prof. H. T. Little on "Rotations," and a short article by Miss Ormerod on "Apple Weevil," as well as much purely college news. The journal in its new form deserves success.

THE Report has been issued of the Technological Examination, 1882, of the City and Guilds of London Institute. The new regulations, in accordance with which this examination was conducted, differed in many particulars from those of the previous year, but principally: (1) in the increased number of subjects of examination; (2) in the substitution of two for three grades; (3) in the permission accorded to candidates to be re-examined in the same grade for a certificate of a higher class; (4) in the reversion to the rule which had previously been in force of examining candidates in one subject only. These differences have to be considered in comparing the results of this year's examination with those of the previous or of any other year. At the recent examination in technology, 1972 candidates presented themselves. This number represents, however, a small proportion only of the number of students who have obtained instruction, during the past year, under the direction of the Institute, and in connection with these examinations. From the returns received in November last, it appears that 3467 students were at that time attending technical classes in different subjects, in accordance with the requirements of the programme; and in many cases the attendance was subsequently increased by students entering the classes after the returns had been forwarded to the central office. A satisfactory increase is shown in the results of the recent examination as compared with that of any preceding year. In 1881, 1563 candidates were examined at 115 centres in 28 different subjects, of whom 895 passed; in 1882, 1972 candidates were examined at 147 centres in 37 subjects, of whom 1222 passed. The provincial centres which, this year, sent up the largest number of successful candidates were Bolton with 124, Glasgow with 109, Manchester with 71, Bradford with 62, and Oldham with 50. By reference to the occupations of the candidates, it is found that in places where there has been a large proportion of failures, many of the candidates are not actually engaged in the industry in which they have been examined. In 16 subjects there has been an increase in the number of candidates. In "Mechanical Engineering," in which the largest number of candidates presented themselves, there has been an increase of 52 candidates. In "Cotton Manufacture" the increase is 140; in "Mine-surveying" 44. Of the 1972 candidates who were this year examined, 506 have not been educated in any of the classes in connection with the Institute, the teachers of which receive payment on results. These students have been prepared in various colleges, such as University College, London, the Technical College, Finsbury, the Yorkshire College, Leeds, University College, Nottingham; or they have supplemented the information gained in the factory or workshop by private study. Of the 1466 who have received instruction in the registered classes of the Institute, 845 have succeeded in passing. The percentage of failures this year, as in former years, is less among the outside candidates, on the results of whose examination no claim for payment is made by any teacher. But, on the other hand, it is very satisfactory to note that the percentage of failures in the registered classes of the Institute has fallen from 50·6 in 1881 to 42·3 in 1882, whilst the proportion of candidates taught in these classes has decidedly increased.

THE steamer *A. E. Nordenskjöld*, belonging to M. Sibiriakoff, left Tromsö on the 18th inst. for the Jenisei. The vessel has on board a cargo of English merchandise, two steam launches, and an engine for the Siberian gold works. The vessel will attempt to save some of the cargo lost in the *Oscar Dickson* in Gydaviken, and return next year with a full cargo of tea, which will be brought from China across the Baikal sea to Kureika on the Jenisei.

THE two Swedish gunboats which conveyed the circumpolar observation party to Spitzbergen, have just returned to Tromsö. Capt. Palander states that it was impossible to approach Mossel Bay, he having made two attempts, on account of heavy pack-ice, and that the party had therefore settled on Cape Thordsten as their residence, where observations commenced on the 15th inst. He further reports that all the Norwegian fishermen he met complained of the unfavourable season and the enormous quantity of ice this summer, no vessel having been able to get higher than Amsterdam Island, from where no opening could be seen by telescope in any direction.

ACCORDING to advice from the Geological expedition, which the Swedish Government has despatched to Spitzbergen this summer, the members were in Isefjord on the 6th inst. pursuing their labours.

AT a meeting of the principal Swedish herring merchants convened at Strömstad this month by Herr von Yhlen, Inspector of the Fisheries of Sweden, this gentleman urged the necessity of establishing a Board of Fisheries as existing in Scotland, and the introduction of the "branding" system in use in the Scotch herring trade, to which the excellent state of this industry in Scotland, he stated, was entirely due. Herr v. Yhlen offered to engage Scotch "coopers" to teach their method, a proposition which was accepted by those present, a sum of money being subscribed for the purpose.

THE additions to the Zoological Society's Gardens during the past week include a Campbell's Monkey (*Cercopithecus campbelli*), a Diana Monkey (*Cercopithecus diana*) from West Africa, presented by the Rev. C. Harris; a Wood Brocket (*Cariacus nemorivagus*), a Hairy Armadillo (*Dasypus villosus*) from Brazil, presented by Mr. C. A. Craven; a Cariama (*Cariama cristata*) from Brazil, presented by Capt. Jones, H.M.S. *Garnet;* four Frogs (—— sp. inc.) from Dominica, presented by Mr. E. Scrutton; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, deposited; a Weeper Capuchin (*Cebus fatuellus*) from Guiana, two New Zealand Parrakeets (*Cyanorhamphus novæ-zealandiæ*), two Alpine Parrakeets (*Cyanorhamphus alpinus*), two Golden-headed Parrakeets (*Cyanorhamphus auriceps*), two —— Parrakeets (*Cyanorhamphus*, sp. inc.) from New Zealand, two Peruvian Thicknees (*Œdicnemus superciliaris*) from Peru, four Common Kingfishers (*Alcedo ispida*), British, purchased; a Cape Zorilla (*Ictonyx zorilla*) from South Africa, received on approval.

OUR ASTRONOMICAL COLUMN

THE CLUSTER PRÆSEPE.—At the sitting of the Academy of Sciences of Paris on the 14th inst., a paper was presented by M. Wolf, giving a description of this well-known star-cluster, and micrometric measures of the relative positions of its principal components. M. Wolf made use of the same methods and instruments of the Observatory at Paris which he had employed in 1873-75, in his elaborate scrutiny of the Pleiades. His work upon Præsepe comprises three sections: I. the micrometric determination of the relative positions of its principal stars, to the number of 82, with the filar-micrometer used in 1873-75. The positions of the 82 stars are given relatively to ε Cancri, and are reduced to the beginning of the year 1877, for which epoch the place of the reference star is in R.A. 8h. 33m. 23s.·75, N.P.D. 70° 1′ 18″·0; these stars are between the seventh and eleventh magnitudes. II. The micrometric determination of the relative positions of all the stars in the group to the twelfth magnitude comprised in a rectangle of eight minutes of time by ninety minutes of arc, these determinations being made with the micrometer constructed by M. Wolf for the rapid registration of groups of stars, the places being given to a tenth of a minute of arc by reference to the accurate positions of section I.; this second catalogue includes 188 stars. III. A revision by actual comparison with the sky of the chart of positions so formed, and the insertion of stars omitted or lower than the twelfth magnitude; the chart thus completed contains 363 stars.

Unfortunately there are few ancient observations for comparison. The *Memoirs* of the Academy of Sciences (first series) contain two charts of the cluster, one formed by Cassini and Lahire in 1692, the other by Maraldi in 1707, but they only serve for identification of certain stars, and give neither positions nor exact magnitudes. In 1790 Le Monnier published a catalogue of 31 stars, of which 18 occur within the limits of M. Wolf's chart; 15 of these correspond to his observed positions, with a mean error of ±0·4s. in R.A. and ±13″ in N.P.D. Le Monnier's Nos. 7, 11, and 19 do not correspond within these limits to any existing stars, but there is no reason to infer great displacement, since Lalande assigns positions which nearly agree with M. Wolf's.

Prof. Winnecke observed some years since with the Bonn heliometer the principal stars in this cluster, but his results are not yet published. In 1870 Prof. Asaph Hall published a catalogue of 151 stars observed at Washington in the years 1864–1870, the places being in close accordance with those obtained by M. Wolf.

THE EXPECTED RETURN OF THE COMET OF 1812.—Extensive sweeping ephemerides prepared by MM. Schulhof and Bossert, after a rigorous discussion of the observations in 1812, have been issued by the Observatory at Paris. They find the most probable period 71·7 years, one year longer than was assigned by Encke, who first proved the impossibility of representing the observations by a parabola. Further, they consider the effect of planetary perturbation since 1812 may bring the comet again to perihelion about the middle of the year 1883. But there is an uncertainty in the actual period of revolution in 1812 amounting to ±3½ years, so that it is desirable to institute at once a systematic search for the comet. The ephemerides in question are for the three months, August—October; with the sun's true longitude as argument (or, more approximately, with the date), twenty-five positions corresponding to different values of the comet's true anomaly are found, which indicate the curve in which it should be sought at the time. The data are too extensive to be reproduced here, and their utility would be diminished by curtailment. It may be presumed that the ephemerides will be within reach of any practised observer who contemplates taking part in the search for the comet. In 1812 the distance from the earth at the time of discovery by Pons was 1·81, and from the sun 1·30, consequently the theoretical intensity of the light was 0·18. According to Bouvard, it became visible to the naked eye on August 18, with a pretty bright nucleus and a tail of 2°. On September 12 we read: "La queue de la comète est divisée en deux branches parallèles; sa longueur paraît d'environ 3 degrés."

SCIENTIFIC SERIALS

Journal of the Franklin Institute, August.—On a theory of Rankine relating to the economy of single action of expansion engines, first published in 1851, by Prof. Trowbridge.—The specific heat of platinum and the use of this metal in the pyrometer, by Mr. Hoadle.—Bell chimes in Philadelphia and other places, by Mr. Nystrom.—Electric clocks and time-telegraphs, by Mr. Spellier.—Feldspar as a source of potash alum, by Mr. Spiller.—On the prevention of fires in theatres, by Mr. Hexamer.—Report of the special committee on the pollution of the Schuylkill River.

Journal of the Russian Chemical and Physical Society, vol. xiv. fascicule 6.—On the specific volumes of elements in liquid and solid compounds, by M. Schalfeyeff. The coefficients of diminution of volume of two elements entering into chemical combination gives, according to the author, a measure of the chemical energy of combination and determines the position of the different elements in the natural scheme of Mendeleeff.—On nitric ethers of the lactose, by Dr. Gué.—On the formation and decomposition of the acetanilide, by Prof. Menshutkin, being a new work undertaken in connection with the researches on etherification.—Barometographe by weight, by M. Kraevitch.—On the influence of dilatation on the electrical resistance of copper and brass wire, by M. Chwolson.—Demonstration of the distribution of electricity on the superficy of conductors, by P. Van-der-Vlieth.—Photo-electric battery, by J. Borgmann.—On the existence of a pondero-electro-kinetic part of energy in the electro-magnetic field, by R. Colly.—Necrology of G. C. Brauer, the able optician of the Pulkova Observatory, to whom this observatory, as well as the Russian General Staff and Russian travellers generally, are so much indebted for so many beautiful instruments and so many remarkable adaptations of scientific instruments for travelling purposes.

CONTENTS

PAGE
THE LITERATURE OF BOTANY. By JAMES BRITTEN 417
OUR BOOK SHELF:—
  Dunman's "Talks about Science" 418
LETTERS TO THE EDITOR:—
  The *Eira* Arctic Expedition.—CLEMENTS R. MARKHAM, C.B., F.R.S. 418
  Markree Magnetic Dip.—Dr. W. DOBERCK 418
  The Gesture Speech of Man.—HYDE CLARKE 419
  Orange Culture in Florida.—Major J. HERSCHEL 419
WILLIAM STANLEY JEVONS 420
THE BRITISH ASSOCIATION 421
  Section C—Geology—Opening Address by Robert Etheridge, F.R.S., F.G.S., President of the Section 422
  Section D—Biology—Department of Anthropology—Address by W. Boyd Dawkins, M.A., F.R.S., F.G.S., F.S.A., Professor of Geology and Palæontology in the Victoria University, Vice-President of the Section 434
  Section E—Geography—Opening Address by Sir Richard Temple, Bart., G.C.S.I., D.C.L., F.R.G.S., President of the Section . . 437
  Section G—Mechanical Science—Opening Address by John Fowler, C.E., F.G.S., President of the Section 441
NOTES 446
OUR ASTRONOMICAL COLUMN:—
  The Cluster Præsepe 448
  The Expected Return of the Comet of 1812 448
SCIENTIFIC SERIALS 448